國立勤益科技大學 114 學年度工程學院冷凍空調與能源系二技國際學生產學合作專班
National Chin-Yi University of Technology
Curriculum Planning of 2025 Two-Year College Industry-Academia Collaboration Program for International Students in Department of Refrigeration, Air Conditioning and Energy Engineering of College of Engineering

113.10.16 系課程會議審議通過
113.10.23 系務會議審議通過
113.11.19 院課程會議審議通過
113.12.5.校課程委員會議及 113.12.24.臨時教務會議審議通過
114.04.16 系課程會議審議修訂通過
114.04.18 系務會議審議修訂通過
114.5.6 院課程會議審議修訂通過
114.5.20.校課程委員會議及 114.6.5.臨時教務會議審議修訂通過
115.03.03 系課程會議及115.03.18 系務會議審議修訂通過
115.04.22 系課程會議及115.05.06 系務會議審議修訂通過
115.6.4校課程會議及115.6.18教務會議審議修訂通過

	第一學年 First Year						第二學年 Second Year						第三學年 Third Year			
		上學期 First Semester			下學期 Second Semester			上學期 First Semester			下學期 Second Semester				上學期 First Semester		
	科 目 Courses	學分 Credits	正課 Lecture	實習 Internship	學分 Credits	正課 Lecture	實習 Internship	科 目 Courses	學分 Credits	正課 Lecture	實習 Internship	學分 Credits	正課 Lecture	實習 Internship	科 目 Courses	學分 Credits	正課 Lecture	實習 Internship
必修	共同科目(17 學分) General Required Courses (17 credits hours)																	
	華語聽說(一) Chinese Listening and speaking（Ⅰ）	3	5	0				華語聽說(三) Chinese Listening and speaking (III)	3	3	0							
	華語讀寫(一) Chinese Reading and writing（Ⅰ）	3	5	0														
	體育(一) Physical Education（Ⅰ）	0	2	0														
	華語聽說(二) Chinese Listening and Speaking (II)				3	5	0											
	華語讀寫(二) Chinese Reading and Writing (II)				3	5	0											
	藝術與哲學 Art and philosophy				2	2	0											
	體育(二) Physical Education（Ⅱ）				0	2	0											
	小計	6	12	0	8	14	0		3	3	0							
	校訂必修科目(35 學分) Professional Required Courses(35 credits hours)																	
	工程數學(一) Engineering Mathematics (I)	3	3	0				實務專題 Project Study	2	0	6							
	熱力學 Thermodynamics	3	3	0				能源工程原理與實習 Energy Engineering Principle and Practices	3	2	2							
	環境控制 Environmental control	3	3	0				★產業實習(一) Industry internship (Ⅰ)				9	0	9				
	冷凍空調基礎裝修實務 Basic Practices of Refrigeration and Air-Conditioning	3	2	2														
	空調工程與實習 Air- Condition Engineering and Practices				3	2	2											
	冷凍工程及實習 Refrigeration Engineering and Practices				3	2	2											
	機電整合實務 Mechatronics integration practice				3	2	2											
	小計	12	11	2	9	6	6	小計	5	2	8	9	0	9				
專業選修	校訂選修科目(20 學分) Professional Electives Courses(20 credits hours)																	
	自動控制 Automatic Control	3	3	0				工業安全 Industry Safety	3	3	0				★產業實習(二) industry internship (Ⅱ)	9	0	9
	燃料電池概論 Introduction to Fuel Cells	3	3	0				現代控制 Modern Control	3	3	0				專案研究 Project research	3	3	0

	變頻節能控制 Variable Frequency Energy Saving Control	3	3	0				振動與噪音控制 Vibration and Noise Control	3	3	0				通風工程 Ventilation and Air Moving Engineering	3	3	0
	虛擬儀控軟體應用 Basic Programming and Application of Virtual Instrument Software	3	3	0				冷凍空調系統故障分析 Refrigeration and Air-Conditioning System Problem Diagnostic and Repair Procedure	3	3	0				綠建築與照明節能 Energy Saving of Green Building and Lighting	3	3	0
	流體力學與流體機械 Fluid Dynamics and Fluid Mechanics	3	3	0				太陽能工程 Solar Energy Engineering	3	3	0							
	模糊控制概論 Fuzzy Control Theory				3	3	0	廠務技術 Facility System Technique	3	3	0							
	電腦立體製圖 Computer 3D graphics				3	3	0	熱交換器設計 Heat Exchanger Design	3	3	0							
	消防控制概論 Introduction to Fire Fighting Engineering				3	3	0	工程力學 Engineering Mechanics	3	3	0							
	工程數學(二) Engineering Mathematics (II)				3	3	0	無塵室技術 Cleanroom Technology	3	3	0							
	電子設備冷卻技術 Cooling Technique of Electronic Equipment				3	3	0	電腦輔助設計與實習 Computer Aided Design	3	1	2							
	科技溝通 Communication of Science and Technology				3	3	0	精密加工技術 Precision Machining Technique	3	3	0							
	冷凍空調設備與實習 Equipment and Practices of Refrigeration and Air-Conditioning				3	2	2	風力發電 Wind Power Generation				3	3	0				
	冷凍空調裝修實務 Practice of Refrigeration and Air-Conditioning Installation and Maintenance				3	2	2	特殊空調系統 Distinctive Air-Conditioning System				3	3	0				
								流場分析專業軟體應用 Computational Fluid Dynamics				3	3	0				
								冷凍空調工程規劃及管理 Planning and Management of Refrigeration and Air-Conditioning Engineering				3	3	0				

備註

一、 畢業至少應修 72學分(必修52學分，本系專業選修20學分)。
Students should complete at least 72 credits before graduation, including 52 required credits, 20 elective credits (elective credits should have at least 20 credits from department elective courses)

二、 學生須於三年級第二學期結束前通過華語文能力A2(含)級以上測驗。如未能通過華語文能力A2(含)級以上測驗者，則學校應逕予退學。
Students must pass the Chinese Language Proficiency Test of A2 (inclusive) or above before the end of the second semester of the third grade. Those who fail to pass the Chinese language proficiency test of A2 (included) or above will be expelled from the school.

三、 學生應於三年級第一學期修畢華語輔導課程(0學分5學時)。
Students should complete the Extracurricular Chinese Class in the first Semester of the third grade.

四、 為因應法規變更、評鑑建議或政府計畫規定等外在因素，本系保有調整學分計畫之權利。若有修訂，將於學期開始前公告，並明確說明修訂內容、影響範圍及相關配套措施，以保障學生權益。
The department reserves the right to adjust the curriculum in response to external factors such as changes in regulations, suggestions of evaluation and accreditation, or government program regulations. If there are any revisions, will be announced before the start of the semester, and the revised content, scope of impact, and related supporting measures will be clearly stated to protect the rights and interests of students.

五、 註記★為校外實習課程，說明如下：
產業實習(一)為必修課程，產業實習(二)為選修課程，因故無法參與校外實習課程者，每學期 9 學分，須由「實習替代課程選修科目」中三門課程修讀。
Courses marked with ★ indicate off-campus internship programs. The details are as follows:
Industry internship (I) is required course, while Industry internship (II) is elective course. Students who are unable to participate in off-campus internship programs for any reason are required to take 9 credits of courses per semester, including three courses selected from the "Alternative Courses for Internship" list.

實習替代課程選修科目
Alternative Courses for Internship

課程名稱 Course Name	學分 Credits	學時 Hours	課程名稱 Course Name	學分 Credits	學時 Hours
虛擬儀控軟體應用與實習 **Basic Programming Application and Practice of Virtual Instrument Software**	3	3	**冷凍空調設備與實習** **Equipment and Practices of Refrigeration and Air-Conditioning**	3	4
冷凍空調裝修實務 **Practice of Refrigeration and Air-Conditioning Installation and**	3	4	**電腦輔助設計與實習** **Computer Aided Design**	3	3

Maintenance					
專案研究與專題實務 **Project Study and Practice**	3	3	電腦輔助繪圖設計與實習 Computer Aided Drafting and Practice	3	3
非傳統加工實習 Non-Traditional Machining Processes and Practice	3	3	MATLAB 程式設計與實習 MATLAB Programming and Practice	3	3
機器人控制實務 Robot Control Practice	3	3	精密量測原理與實習 Precision Measurement and Practice	3	3
可程式控制與實習 Programmable Logic Controller Principles and Applications and Practice	3	3	自動控制與實習 Automatic Control and Practice	3	3
電腦輔助產品設計與實習 Computer Aided Product Design and Practice	3	3	微控制器應用及實習 Microcontroller Application and Practice	3	3
氣液壓學與實習 Pneumatic Hydraulic and Practice	3	3	感測器原理應用與實習 Sensor Principle and Application and Practice	3	3
物聯網應用與實習 IoT Application and Practice	3	3	控制系統設計及實習 Control System Design and Practice	3	3
機電整合應用實習 Mechatronics Application and Practice	3	3	Python 程式設計與實習 Python Programming and Practice	3	3
電路設計模擬及實習 Circuit Design Simulation and Practice	3	3	網路語言 I/O 應用及實習 Network Language I/O Application and Practice	3	3
專業軟體應用及實習 Professional Software Application and Practice	3	3	科技英文實務（一） English for Science and Technology I	3	3
科技英文實務（二） English for Science and Technology II	3	3	分析化學實務 Analytical Chemistry Practice	3	3
電鍍技術與實務 Electroplating Technology and Application	3	3	綠色材料檢測分析實驗 Green Material Testing Analysis Experimen	3	3
半導體實務(一) Semiconductor Practice (I)	3	3	半導體實務(二) Semiconductor Practice (II)	3	3
程序工程與能源應用實務 Practice of Process Engineering and Energy Applications	3	3	AI 控制實務 AI Control in Industrial Applications	3	3
人工智慧分析預測實務 Practical Applications of AI in Data Analysis and Forecasting	3	3	半導體產業實務 Semiconductor Industry Practice	3	3